

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Amendment of Parts 1, 2, 15, 74, 78, 87, 90, and 97)	
of the Commission's Rules Regarding)	
Implementation of the Final Acts of the World)	ET Docket No. 12-338
Radiocommunication Conference (Geneva, 2007))	
(WRC-07), Other Allocation Issues, and Related)	
Rule Updates)	

**REPLY COMMENTS OF THE UTILITIES TELECOM COUNCIL AND THE EDISON
ELECTRIC INSTITUTE**

Pursuant to Section 1.405 of the Commission's Rules, the Utilities Telecom Council ("UTC") and the Edison Electric Institute ("EEI") hereby file their reply comments¹ in response to the Commission's Notice of Proposed Rulemaking and Order in the above-referenced proceeding.² The record reflects that utilities and PLC providers are unanimously opposed to an amateur allocation at 135.7-137.8 kHz on a secondary basis. They, like UTC and EEI, are opposed because an amateur allocation would undermine the reliability of PLC systems that are used to protect the reliability of the electric transmission system. Meanwhile, amateur operators and the ARRL who support the allocation fail to offer any reasonably practical solutions that would address the potential for interference between PLC and amateur operations. As such, the Commission should decline to adopt a secondary allocation in the 135.7-137.8 kHz band for amateur radio services.

¹ These reply comments are expressly supported by Ameren Services, which is based in St. Louis and provides support services to Ameren, a large investor-owned utility that provides electricity and gas services to millions of customers in Illinois and Missouri.

² *Amendment of Parts 1, 2, 15, 74, 78, 87, 90, and 97 of the Commission's Rules Regarding Implementation of the Final Acts of the World Radiocommunication Conference (Geneva, 2007) (WRC-07), Other Allocation Issues, and Related Rule Updates*, Notice of Proposed Rulemaking and Order, ET Docket No. 12-338, 27 FCC Rcd. 14598 (2012)(hereinafter "NPRM").

I. The Commission Should Not Allocate the 135.7-137.8 kHz Band for Amateur Use.

As UTC explained in its comments and as many other commenting parties agree, the Commission should decline to adopt a secondary allocation for amateur services in the 135.7-137.8 kHz band for many, if not more, of the same reasons that it declined to adopt such an allocation in 2003. The band continues to be used by utilities for PLC systems. Those PLC systems remain critical to ensuring electric grid reliability. Interference to and from PLC systems to potential amateur operations would threaten the reliability of PLC systems, potentially causing cascading outages. There are no reasonable alternatives or feasible coexistence mechanisms. Nor would the public interest be served by making such an allocation, because the public interest in reliable electricity clearly outweighs the public interest in amateur experimentation in this band. Therefore, the Commission should decline again to allocate the 135.7-137.8 kHz band for amateur services on a secondary basis.

A. Utilities continue to use the band for PLC systems.

Utilities that commented on the record reported that they continue to use PLC systems to protect the electric grid from faults. As PPL explained, “[t]here are numerous causes for faults and outages on electric distribution and transmission systems, including but not limited to: trees, small animals, or other objects temporarily coming into contact with a circuit; lightning strikes; downed power lines or poles due to vehicle strikes; extreme weather conditions; or failure of the distribution facilities.”³ In order to minimize outages, ensure the safety of customers and the communities served, and to maintain the integrity and reliability of the electrical system, many electric utilities, such as PPL Electric, use power line carrier systems.⁴ The Exelon utilities

³ Comments of PPL Electric Utilities Corporation in ET Docket No. 12-338 at 2 (filed Feb. 25, 2013).

⁴*Id.*

agreed and stated that they use PLC in rural and suburban areas for the protection of transmission lines that may have multiple taps for large distribution centers and/or heavy industrial load.⁵

Similarly, NextEra stated that PLC systems have been integral to the design and are used extensively for all of its transmission lines and transmission and distribution substations over its 7300 miles of transmission lines and 800 substations throughout the United States and Canada.

More specifically, these utilities reported that they use the 135.7-137.8 kHz band.

Dayton Power and Light Company (“DP&L”) reported that it “uses PLC systems for the protection of high voltage power lines of up to 345,000 volts and specifically uses the 135.7 kHz to 137.8 kHz bandwidth to control flows and to respond to line faults caused by downed power lines, potential overloading, voltage fluctuations and other abnormal conditions on several of its major transmission lines, including two lines operating at 345,000.”⁶ DP&L reported further that “[t]his is not unique to DP&L – the use of this radio frequency bandwidth to transmit the control signals for equipment protection is *very common* among power utilities in the industry and that has been true for many years.”⁷ This observation is consistent with UTC’s comments, which reported that nearly 2100 PLC transmitters operate in the 135.7-137.8 kHz band, which is actually more transmitters than in 2003.⁸ In addition, it is consistent with the comments of American Electric Power,⁹ NextEra,¹⁰ Exelon,¹¹ Great River Energy,¹² and CenterPoint Energy.¹³

⁵ Comments of Exelon Corporation in ET Docket No. 12-338 at 1 (filed Feb. 25, 2013). Note that Exelon Corporation is a holding company and owns Commonwealth Edison (ComEd), PECO Energy Company (PECO) and Baltimore Gas & Electric Company (BGE), among others. The Exelon utilities serve over six million retail electric customers in northern Illinois, the Philadelphia area and central Maryland respectively. *Id.*

⁶ Comments of Dayton Power & Light in ET Docket No. 12-338 at 2 (filed Feb. 22, 2013).

⁷ *Id.* emphasis added.

⁸ Comments of UTC in ET Docket No. 12-338 at 4, n.12 (filed Feb. 25, 2013).

⁹ Comments of American Electric Power in ET Docket No. 12-338 at 1 (filed Jan. 2, 2013)(stating that “AEP has many transmission lines which use Power Line Carrier (PLC) in or near the proposed frequency range.”)

B. Interference from an Amateur allocation would threaten PLC systems and electric reliability.

PLC systems remain critical to electric reliability and interference to and from potential amateur operations would threaten reliability of PLC operations, which could lead to cascading outages. As Entergy reported, “[t]he high voltage electric power system could be subject to false protective signaling from amateur radio operation if the Commission adopts the NOPR to reallocate this spectrum.” Furthermore, Entergy cites the North American Electric Reliability Corporation (which is authorized by FERC as the industry Electric Reliability Organization (“ERO”) under the provisions of the Energy Policy Act of 2005), and explains that “[a] misoperation—a false operation of a protection system or a failure of the protection system to operate when needed—can result in equipment damage, personnel hazards, and wide area disturbances or unnecessary customer outages.”¹⁴ Other utilities echo the same concerns about the potential for interference between PLC systems and proposed amateur operations in the

¹⁰ Comments of NextEra Energy, Inc. in ET Docket No. 12-338 at 1 (filed Feb 22, 2013)(stating that “NextEra transmission subsidiaries operate 56 frequencies in this band affecting 38 power lines in a voltage range between 115 kV to 500 kV.”).

¹¹ Comments of Exelon Corporation in ET Docket No. 12-338 at 3 (filed Feb. 14, 2013)(stating that “[t]he Exelon utilities have more than 20 transmission lines that use bandwidths between 131.7 to 141.8 kHz, considering a +/- 4 kHz window included in our channel spacing.”)

¹² Comments of Great River Energy in ET Docket No. 12-338 at 2 (filed Feb. 25, 2013)(stating that GRE uses this frequency band for protective relaying of bulk transmission lines.”)

¹³ See Comments of CenterPoint Energy in ET Docket No. 12-338 at 2 (filed Feb. 25, 2013)(stating that “[t]he 135.7 to 137.8 kHz band is a preferred band for PLC use by electric utilities in the United States, including CenterPoint Energy.”); and *see Id.* (stating that “CenterPoint Energy is currently using PLC as a part of essential protective relaying on the transmission system and presently has 60 transmission lines protected by PLC equipment in the 131 kHz to 141 kHz band, including a 4 kHz buffer zone above and below the proposed allocation.”)

¹⁴ *Id.* at 3, *citing* North American Electric Reliability Corp., Protection Systems Maintenance: A Technical Reference at 1 (Sept. 13, 2007) *available at*: http://www.nerc.com/docs/pc/spctf/Relay_Maintenance_Tech_Ref_approved_by_PC.pdf.

135.7-137.8 kHz band.¹⁵

C. There are no reasonable alternatives or practical coexistence mechanisms.

There are no reasonable alternatives or practical coexistence mechanisms, either. As Exelon explained in its comments, “PLC as used by the Exelon utilities is cost effective and well suited for protection schemes because it uses the existing infrastructure (power line) as the communications medium. Other technologies (fiber or microwave) are generally impractical on these type of lines because of the additional infrastructure required for the low bandwidth, high speed, reliable protection messages broadcast to multiple locations that can be geographically distant.”¹⁶ Furthermore, it is not practical to simply retune PLC systems out of the 135.7-137.8 kHz band. As Exelon explains, PLC frequency allocation is “mapped (distributed) to avoid repeating usage of a frequency band for two consecutive transmission lines or lines on the same towers. There is significant congestion in certain geographic areas where making a change to a frequency band with these criteria would require extensive remapping of a PLC frequency allocation of a larger part of the system.”¹⁷

Retuning PLC systems is no small matter. Exelon reports that “[t]o change the frequency

¹⁵ See e.g. Comments of DP&L at 2 (explaining that “Power lines of 100,000 volts or more are part of the Bulk Electric System that has been identified by Congress, the North American Electric Reliability Corporation (“NERC”) and the Federal Energy Reliability Commission (“FERC”) as critical facilities of national importance” and that “interference with the control signal in this frequency range could lead to the malfunction of protective equipment, which in turn could either cause or impair the ability to halt cascading black-outs or other catastrophic events.”); Comments of NextEra at 2 (stating “PLC has been a very reliable means of communication; however, it is vulnerable to interference from transmitters at or near a utility’s operating facilities. This is especially true in the more densely populated areas in which NextEra operates.”); Comments of Great River Energy at 2 (stating “Interference that potentially could cause protective relaying equipment to misoperate or fail to operate could result in damage to transformers and other equipment that cost millions of dollars in addition to causing outages to thousands of people.”); and Comments of PPL Corporation at 5 (stating “[t]here is a significant risk that the nearby operation of amateur radios within the same frequency band used by a PLC system could interfere with the proper communication between electric facilities. Interference with a PLC system could cause un-faulted transmission lines to be removed from the power grid, resulting in numerous outages.”)

¹⁶ Comments of Exelon at 1-2.

¹⁷ *Id.* at 2.

of just one transmission line using PLC would require the following actions:

1. Engineering study to determine available frequency bands and if additional lines will need frequency band changes because of the first change and evaluate whether our existing equipment can be adjusted to the new frequency.
2. Perform cost analysis to determine if this change is more cost effective than the next budget-conscious alternative.
3. Procure new equipment if needed. Some PLC equipment has had historically long lead times.
4. Allocate engineering resources to produce new settings and drawings for the new or existing equipment at all affected terminals
5. Schedule an outage on the bulk electric system. This could take months to schedule based on approvals that we would have to obtain from our regional transmission operator (PJM) and coordination needed for the allocation of resources to perform the work.
6. Allocate field resources to complete the PLC frequency change, including removal or adjustments to existing functioning equipment, installing any new equipment, and commissioning the revised design.”¹⁸

Finally, Exelon estimates that “[t]he process for changing the frequency on a single line could take a year and cost anywhere from \$20,000 to \$500,000 depending on the number of terminals on the line and the adaptability of the existing equipment to the new frequency.”¹⁹ Other utilities echo the same lack of reasonable alternatives to PLC systems.²⁰

Comments on the record demonstrate that coexistence mechanisms are unworkable and that alternative bands would not represent a better fit. Utilities oppose quasi-coordination, due to

¹⁸ *Id.* at 3.

¹⁹ *Id.*

²⁰ Comments of NextEra at 2-3 (similarly reporting that retuning PLC systems would require an engineering study, a cost analysis, a budget estimate, and other steps which could require a year or more to complete and could cost \$20,000 to \$500,000.); Comments of Great River Energy at 2 (stating “If GRE were to need to change to different PLC frequencies, the cost is approximately \$10,000 to \$50,000 per line. More problematic than the cost is that these lines are bulk transmission lines that serve tens of thousands or hundreds of thousands of people and businesses and are extremely difficult to obtain and coordinate outages on to make required changes to PLC equipment. If GRE were to change to fiber for protective relaying, the cost is considerably higher at approximately \$18 to \$36 million and is cost prohibitive.”); and Comments of PPL at 6-7 (estimating that “changing the frequency on a single line could cost up to \$500,000 depending on the number of terminals on the line and the adaptability of the existing equipment to the new frequency,” and that “retuning PPL Electric’s PLC system to avoid interference with amateur radio service would be difficult due to the significant congestion already on the PLC frequency band.”)

the importance of PLC systems and the difficulty of adjusting PLC operations.²¹ Meanwhile, ARRL and amateurs propose conditions for quasi-coordination which would significantly limit its practical application and which would preclude future use of the band by utilities.²² Similarly, ARRL and amateurs reject the Commission's suggestion to limit eligibility to certain classes of amateur operators, as a means to promote coexistence.²³ Finally, in response to the Commission's question whether other bands besides the 135.7-137.8 kHz band would represent a "better fit",²⁴ utilities disagree whether frequencies above 225 MHz should be used²⁵ and amateurs reject using the 472-479 kHz band instead.²⁶ Thus, there is no consensus on the record that would support either coexistence mechanisms or alternative bands.

²¹ See Comments of CenterPoint Energy Houston Electric, LLC in ET Docket No. 12-338 at 3 (filed Feb. 25, 2013); Comments of Exelon at 3; Comments of NextEra at 3; and Comments of Great River Energy at 4.

²² See Comments of ARRL, the National Association for Amateur Radio in ET Docket No. 12-338 at 16 (filed Feb. 25, 2013)(proposing that coordination or notification only apply to proposed amateur operations located closer than 1 km to a PLC system and requiring a response within 30 days that, in the case of a denial, provides an explanation with a technical justification of any required modification of the planned Amateur operation.) *And see Id.* at 19 (suggesting that utilities be required to use alternate frequencies for the PLC system, as a means of reaching an accommodation for a proposed amateur radio station.)(hereinafter Comments of ARRL). See also Comments of John H. Davis in ET Docket No. 12-338 at 7 (proposing that quasi coordination be limited only to existing systems, such that "no new systems should be installed that will operate between 131.7-141.8 kHz, and no existing system should be re-tuned into that segment.")

²³ See Comments of ARRL at 17 (stating that "ARRL would prefer that operating privileges in this frequency band not be limited to Amateur Extra Class licensees.") See also Comments of John H. Davis at 8 (stating "with regard to operator skill, there is probably less direct correlation between license class and skill sets at this frequency than at most other bands," and that "[t]here may be more merit in limiting access to the band by the amount of time the operator has been licensed, than upon *class* of license held.") These comments seem to concede the point made by UTC in its comments that Extra Class amateur operators are just as capable as other amateur operators of causing interference to PLC systems. Compare Comments of UTC at 7, n. 26.

²⁴ See *NPRM* at ¶17 (inviting comment on whether there are "other segments within the 9 490 kHz band where use by amateur stations would be a better fit from a spectrum sharing viewpoint.")

²⁵ See e.g. Comments of DP&L at 1 (stating that it disagrees with the suggestion that frequencies above 225 MHz might be better suited for shared use with amateur stations, because DP&L does operate electric transmission line control equipment using frequencies between 200 kHz and 300 kHz).

²⁶ See Comments of the ARRL at 13 (explaining that the 472-479 kHz band does not provide the same propagation characteristics as the 135.7-137.8 kHz band and that "they should not be considered alternative allocations domestically"). *And see Id.* (stating that ARRL would not object to an alternative LF allocation interest in "a different segment in the frequency range 130-160 kHz"), emphasis in original (implying by negative implication that it *would* object to an amateur allocation in the 472-479 MHz band, as an alternative to the 135.7-137.8 kHz band).

D. The public interest would not be served by an allocation for amateur services on a secondary basis in the 135.7-137.8 kHz band.

In the final analysis, the public interest would not be served by an allocation for amateur services on a secondary basis in the 135.7-137.8 kHz band. The public interest in reliable electricity is significant. By comparison, the public interest in amateur experimental use of the band is limited, particularly considering the limited number of amateur operators who would likely operate in the band. Moreover, whatever limited interest there is in experimental use of the band by amateurs can be accommodated on a Part 15 or Part 5 basis, which would pose less of an interference threat to PLC systems and electric reliability.²⁷

There is no compelling need for a U.S. allocation, notwithstanding WRC-07. As DP&L stated in its comments, “the fact that this bandwidth is allocated to amateur enthusiasts in other countries has little relevance,” because “utilities in those other countries may not be using the same frequencies for their control equipment.”²⁸ In fact, they aren’t. As ARRL itself explains, “[p]ursuant to CENELEC international standards, the lower part of the 9-490 kHz band is segmented,” and “Band C, which includes 135.7-137.8 kHz, is designated for *consumer* use.”²⁹ Thus, as UTC explained in its comments, “PLC systems in Europe use the 135.7-137.8 kHz band only for in-home applications and on the low voltage distribution grid, where the probability, and the magnitude of the risk, of interference to these PLC systems is far less than the risk to PLC

²⁷See e.g. Comments of American Transmission Company, LLC in ET Docket No. 12-338 at 3 (filed Feb. 7, 2013)(stating “American Transmission opposes the Commission’s proposal, as set forth in the NOPR, to reallocate the frequencies from 135.7 to 137.8 kHz to Amateur Radio users on a secondary basis, subject to certain conditions. The negligible benefit to the public of such frequency reallocation is substantially outweighed by the costs to electric utilities such as ATC. Amateur Radio users are recreational users that have access to numerous other frequencies with which to pursue their hobby. In comparison, electric utilities such as ATC utilize the relevant frequencies to provide communications that are integral to maintaining the reliability of the nation’s electrical power system.”)

²⁸ Comments of DP&L at 2.

²⁹ Comments of ARRL at 20, emphasis added.

systems used in the U.S. for substation control.”³⁰

Nothing has changed since 2003 that should alter the Commission’s decision not to allocate the 135.7-137.8 kHz band for amateur services on a secondary basis. Utilities unanimously agree on this point.³¹ The Commission thoroughly considered this issue as both a policy and technical matter. Oddly, ARRL criticizes the Commission’s decision as “not based on any quantitative compatibility evaluation.”³² The ARRL claims that the Commission engaged in a “balancing test” and the question of “how burdensome it would have been for the utilities to avoid the use of this [band] ... was neither asked nor answered.”³³ Nothing could be further from the truth. The Commission provided extensive technical analysis and there was extensive support on the record for its conclusion not to adopt a secondary allocation for amateur use of the band.³⁴ For the same reasons now, the Commission should again decline to allocate the 135.7-

³⁰ Comments of UTC at 7, *citing* CENELEC Standard No. EN50065 (allocating the 95-148.5 kHz band for PLC systems for in-home applications and for the low voltage distribution grid.)

³¹ Comments of DP&L at 2 (stating that “DP&L is aware of no such recent developments” that would prompt Commission re-evaluation of its decision in 2003 to decline the allocation for amateur services in the band); Comments of Exelon at 2 (stating “we know of no developments in recent years that warrant reconsideration of the Commission’s earlier findings [that shared usage of the band could lead to interference].”); Comments of CenterPoint Energy at 2 (“The Company is unaware of any recent developments that should initiate a reason to re-evaluate this allocation.”); Comments of NextEra at 2 (there is no reason for the Commission to reconsider its previous findings.”); Comments of PPL at 5 (“Importantly, nothing in the electric utility industry or the amateur radio industry has changed since the Commission’s well-reasoned decision in 2003.”); and Comments of Entergy at 3-4 (urging the Commission to consider the following explanations from FCC 02-136 (May 15, 2002), which remain true today and explain the nature of the interference and the cost-effectiveness of PLC systems for utilities, including IEEE concerns about interference, inadequate separation distances, lack of viable alternatives, and difficulties for amateurs calculating EIRP.)

³² Comments of ARRL at 8 (claiming that the “Commission simply balanced the perceived importance of PLC systems against the acknowledged desirability of creating a first LF allocation for the Amateur Service, assuming there was some interference potential.”)

³³ *Id.* at 10.

³⁴ The Commission conducted its own technical analysis and concluded that “separation distances on the order of 950 meters would be necessary to protect the PLCs from interference.” That “coupled with the larger-than-expected number of potentially impacted by this proposed allocation, increases the likelihood that a PLC-equipped powerline will be close enough to an amateur station to receive interference.” Thus, the Commission reasonably decided that it would “not jeopardize the reliability of electrical service to the public,” because “utility companies have raised a valid concern that an allocation to the amateur service could result in the need for PLCs to modify or cease their

137.8 kHz band for amateur services on a secondary basis.

E. ARRL misunderstands the importance of PLC systems and the threat from amateur operations.

Despite the ARRL's efforts to downplay the importance of PLC systems and to minimize the disruption that amateur use of the band would have on utilities, the reality is that ARRL makes erroneous assumptions and inconsistent assertions. For example, it concedes at one point that "ARRL has no information regarding the differences in PLC systems deployed in different countries, or the extent to which PLCs utilize 135.7-137.8 kHz."³⁵ Then in the next breath it goes on to cite CENELEC international standards to claim – incorrectly -- that PLC systems in the United States incorporate carrier-sense, multiple-access protocol (CSMA) and can "notch, or make no use of this small segment of the 9-490 kHz band, because current state of the art for PLC systems permits frequency agility."³⁶ Further, it asserts (assuming that PLC systems use CSMA) that "[t]he fact that these devices are mandated to wait some unspecified period of time before transmitting in this part of the band means that the only applications that can be put there are those that can tolerate having to wait occasionally without causing significant harm to the desired operation of the device or system."³⁷

As noted above, the CENELEC standards that ARRL cites apply to in-home PLC systems that operate in the 135.7-137.8 kHz band in Europe – not to PLC systems that utilities in

operations to avoid causing interference to amateurs." *Amendment of Parts 2 and 97 of the Commission's Rules to Create a Low Frequency Allocation for the Amateur Radio Service*, Report and Order, ET Docket No. 02-98 18 FCC Rcd. 10258 at ¶18-19 (2003).

³⁵ Comments of ARRL at 11.

³⁶ *Id.* at 20. Note also that the ARRL asserts – again incorrectly -- that "PLC systems are required by Commission rule to comply with industry standards for immunity," and that "[i]f that rule is complied with, current immunity standards will virtually insure against any interaction between Amateur stations operating at LF (or MF) as proposed herein." To UTC's knowledge there are no Commission rules with regard to immunity standards for PLC systems.

³⁷ *Id.* at 20-21.

the United States use for transmission line and substation protection. Moreover, PLC systems in the United States are not frequency agile, although some do use FSK modulation.³⁸ Worse, ARRL really got it wrong when it asserted that PLC systems can “tolerate having to wait occasionally without causing significant harm to the desired operation of the device or system.”³⁹

PLC systems are designed, built and maintained to meet extremely low latency standards (typically less than 20 milliseconds) in order to protect the grid. As PPL explained in its comments, “there is a significant risk that a high voltage circuit could be damaged by slow fault clearing. A high voltage circuit that would have delayed clearing due to a fault could introduce a cascading outage effect that could cause numerous circuits to experience widespread, long-term outages or cause generating facilities to become unstable. Indeed this cascading scenario is precisely what occurred on August 14, 2003, when a single fault due to vegetation contact with a high voltage transmission line could not be cleared, resulting in the largest power blackout in North American history that affected an area with a population of approximately 50 million people in Ohio, Michigan, Pennsylvania, New York, Vermont, Massachusetts, Connecticut, New Jersey, and Ontario, Canada.”⁴⁰

ARRL’s erroneous assertions reflect its broader disregard for PLC systems or the impact that amateur services may have on utility operations. They also draw into question the accuracy of their other technical assertions regarding the interference potential of amateur services in the

³⁸ See Comments of Pinnacle West in ET Docket No. 02-98 at 2-3 (filed Jul. 29, 2002)(stating that “[t]he most vulnerable PLC receivers are those using Frequency Shift Keyed (FSK) modulation scheme which can be captured” by an interfering signal, possibly created by an amateur operator. An external signal appearing on the correct frequency with enough signal strength to satisfy the receivers security, could be generated by amateur operators potentially located anywhere within several miles of the entire length of the PLC protected line.”)

³⁹ Comments of ARRL at 21.

⁴⁰ Comments of PPL Electric Utilities Corporation at 6.

band.⁴¹ Further, ARRL's emphasis on the need for international harmonization are misplaced, because the allocations in Europe and Japan were made under distinctly different circumstances from the situation that exists with the PLC systems in the 135.7-137.8 kHz band here in the United States. Finally, ARRL's misstatements underscore UTC's concern that if the Commission did adopt a secondary allocation for amateur services in the band, "[w]ithout a doubt amateur operators would use priority status to force utilities off the band."⁴² Therefore, the Commission should decline to adopt such an allocation in order to protect PLC systems and grid reliability.

⁴¹ For example, ARRL asserts without support that the probability of an Amateur station operating in the band being located near a transmission line which hosts a PLC system that uses a frequency in that band segment is "*very low*." Comments of ARRL at 15-16, emphasis in original. The reality is that there a relatively high likelihood that PLC systems will be in close proximity with potential amateur operations.

⁴² Comments of UTC at 4-5. For example, ARRL claims that "PLC represents an exceptionally inefficient use of the entirety of the 9-490 kHz band to the extent that it is allowed to preclude any other use of that large band, given the extremely low level of band occupancy overall. Consistent with the Commission's spectrum policy, the utilities should be expected to make necessary accommodation for this small Amateur Radio allocation, though as discussed *infra*, very little accommodation should be necessary by utilities." Comments of ARRL at 15. Aside from being factually incorrect, this statement belies the sense that amateurs intend to displace PLC operations in the band.

CONCLUSION

For all of these reasons, the Commission should not allocate the 135.7-137.8 kHz band for amateur radio services on a secondary basis, because it would pose an interference threat both to and from PLC systems that use the band and which are vital to electric reliability. The public interest in PLC systems outweighs the interest in amateur radio experimentation in the band, and such experimentation can be easily accommodated on a Part 5 experimental basis or a Part 15 unlicensed basis. Finally, coexistence mechanisms do not appear to be workable, and the Commission should not follow the international allocation because PLC operations in the U.S. in the 135.7-137.8 kHz band are used to protect transmission facilities – interference to which poses a much greater risk to electric reliability than interference to the PLC systems in Europe that use this band solely for in-home and distribution grid applications.

Respectfully submitted,

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Utilities Telecom Council

Brett Kilbourne
Vice President & Deputy General Counsel
1129 20th Street, NW, Suite 350
Washington, DC 20036
(202)833-6807

Edison Electric Institute

Aryeh B. Fishman
Director, Regulatory Legal Affairs
Office of the General Counsel
Edison Electric Institute
701 Pennsylvania Avenue, NW
Washington, DC 20004-2696
(202) 508-5000

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